

Citation:

Rampersaud GC, Pereira MA, Girard BL, Adams J, Metzl JD. Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *J Am Diet Assoc*. 2005 May; 105 (5): 743-760.

PubMed ID: [15883552](#)

Study Design:

Narrative Review

Class:

R - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To present a review of the literature examining the associations between breakfast consumption and three important issues regarding children's health and lifestyle:

- Nutrition adequacy
- Body weight
- Cognitive and academic performance.

Inclusion Criteria:

Literature review began with investigator's personal files and led to a Medline search from 1970 to February 2004 for articles with keyword "breakfast" together with either "adolescent or children." This information was further filtered to include only studies that compared regular breakfast consumers to irregular consumers. Result was 47 articles.

Exclusion Criteria:

Exclusions were not specified further from the inclusion criteria.

Description of Study Protocol:**Recruitment**

- Investigators' research files were reviewed
- Medline search 1970; February 2004 using keyword "breakfast" along with "adolescents or children."

Design

Narrative review.

Blinding Used

Not applicable.

Intervention

Not applicable.

Statistical Analysis

Individual study data utilized with percentage changes and significance restated, as needed.

Data Collection Summary:

Timing of Measurements

Not applicable.

Dependent Variables

- Energy and macronutrient intake in habitual breakfast consumption
- Energy and nutrient intake of breakfast eaters and breakfast skippers
- Breakfast and other dietary factors
- Body weight
- Cognitive performance
- Academic performance, school attendance and tardiness
- Psychosocial issues and mood.

Independent Variables

Breakfast consumers vs. irregular consumers.

Description of Actual Data Sample:

- *Initial N*: 47 articles (total of 98,882 participants)
- *Attrition (final N)*: 47 articles
 - Nutritional adequacy, nine studies
 - Body weight, 16 studies
 - Academic performance, 22 studies
- *Age*: Two-24 years
- *Ethnicity*: Not reported
- *Other relevant demographics*: None
- *Anthropometrics*: None
- *Location*:
 - United States (22)
 - Spain (two)
 - Sweden (two)
 - South Africa (one)
 - Australia (one)
 - Czech Republic (one)

- Saudi Arabia (one)
- United Kingdom (one)
- Finland (one).

Summary of Results:

Key Findings

- Breakfast consumption by children and adolescents in the United States has declined over time from 1965 to 1991: Preschoolers (5%), eight years (9%), 10 years (13%) and adolescents (20%)
- Skipping breakfast is more prevalent in girls, children from low socioeconomic background, older children and adolescents. Breakfast skipping is associated with other lifestyle factors such as smoking, infrequent exercise, dieting and body image concerns
- Reported energy and macronutrient intake from eating breakfast varied widely due to demographics, foods consumed and location of breakfast (home or school). Breakfast eaters tended to have a higher total daily intake of energy compared with breakfast skippers
- Fiber, calcium and micronutrients were significantly higher in breakfast eaters
- Breakfast skippers are more likely to have overall diets defined as poor or inadequate. Breakfast eaters tended to make better food choices throughout the day
- The relationship between breakfast consumption and body weight is not clearly defined
- Breakfast consumption could impact cognitive performance by alleviating hunger. Some studies showed positive effect on memory. Children at nutritional risk appeared to especially benefit from eating breakfast
- There was a beneficial effect of breakfast consumption on academic and achievement test scores, grades, school attendance, tardiness rates, psychosocial functions and mood.

Author Conclusion:

- Breakfast consumption significantly contributes to whole diet nutrient adequacy. Breakfast consumers are more likely to have better overall diet quality and micronutrient and macronutrient and fiber intakes that more often align with current dietary recommendations
- There is substantial evidence that breakfast consumption is associated with the health and well-being of children and adolescents, and the benefits seem to apply to a wide range of age, demographic and socioeconomic groups
- The authors recommend:
 - Children and adolescents should consume a healthful breakfast, at home or at school, on a daily basis, while not exceeding daily energy requirements
 - Breakfast should include a variety of foods including whole grains, fruit and dairy to ensure a variety of nutrients and fiber
 - Alternate sources of calcium should be offered to children who do not or cannot consume dairy but they should also monitor for potentially low Vitamin A and riboflavin intake
 - Dairy and meat products should be low fat, except in children up to two years of age
 - Children who report time as a constraint to eating breakfast should be offered items to eat at or on the way to school
 - Health practitioners should encourage parents to utilize school breakfast programs when available
 - Encouragement should be provided especially to groups more likely to skip breakfast:

Older children/adolescents, teenage girls, black and Hispanic.

Reviewer Comments:

Total number of subjects included was high, but studies were diverse in topic, population and method.

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions

- | | | |
|----|---|-----|
| 1. | Will the answer if true, have a direct bearing on the health of patients? | Yes |
| 2. | Is the outcome or topic something that patients/clients/population groups would care about? | Yes |
| 3. | Is the problem addressed in the review one that is relevant to nutrition or dietetics practice? | Yes |
| 4. | Will the information, if true, require a change in practice? | Yes |

Validity Questions

- | | | |
|----|--|-----|
| 1. | Was the question for the review clearly focused and appropriate? | Yes |
| 2. | Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search terms used described? | Yes |
| 3. | Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased? | Yes |
| 4. | Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible? | No |
| 5. | Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined? | No |
| 6. | Was the outcome of interest clearly indicated? Were other potential harms and benefits considered? | Yes |
| 7. | Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issues considered? If data from studies were aggregated for meta-analysis, was the procedure described? | No |
| 8. | Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included? | Yes |
| 9. | Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed? | Yes |

10. Was bias due to the review's funding or sponsorship unlikely?

Yes

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